

disposed, said circuit surface being coated with a protecting film,

a stress relaxation layer which is formed on the protecting film of the circuit surface of said semiconductor element so as to expose the circuit electrodes, is made of a thermoplastic resin and has an inclination in an edge portion thereof to form an inclined edge portion,

a wiring layer comprised of a plurality of wirings, each of said wirings being connected to one of the circuit electrodes and disposed so as to make an electrical connection from said circuit electrodes, via the edge portion of the stress relaxation layer and to a desired site on a surface of the stress relaxation layer,

Corrected A1  
a surface protecting film which covers a surface of the wiring layer so as to expose a prescribed portion on each of the plurality of wirings on the surface of the stress relaxation layer, and

an external connection terminal formed by connecting a bump to said prescribed exposed portion of each of the plurality of wirings.

2. (Amended) A semiconductor device according to Claim 1, wherein a protuberant portion is formed in a surrounding part connected to the inclined edge portion of the stress relaxation layer and a deflected portion is formed in the wiring existing on said protuberant portion.

3. (Amended) A semiconductor device according to Claim 1 or 2, wherein a melting temperature  $T_m$  of the thermoplastic resin in said stress relaxation layer is not lower than the maximum attainable temperature  $T_{max}$  in the process of forming said wiring layer and surface protecting layer.

4. (Amended) A semiconductor device according to Claim 1 or 2, wherein a melting temperature  $T_m$  of the thermoplastic resin in the stress relaxation layer is not lower than  $350^{\circ}\text{C}$ .

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A1  
5. (Amended) A semiconductor device according to Claim 1 or 2, wherein glass transition temperature  $T_g$  of the thermoplastic resin in said stress relaxation layer is in the range of from  $150^{\circ}\text{C}$  to  $400^{\circ}\text{C}$ .

6. A semiconductor device according to Claim 1 or 2, wherein a coefficient of thermal expansion of the thermoplastic resin in said stress relaxation layer is not greater than  $200 \text{ ppm}/^{\circ}\text{C}$ .

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8. A semiconductor device according to Claim 1 or 2, wherein the thermoplastic resin in said stress relaxation layer is at least one member selected from the group consisting of polyimide, polyamide, polyamide-imide, epoxy, phenolic and silicone.

A3  
10. (Amended) A semiconductor device according to Claim 1 or 2, wherein the wirings are formed so that a width of the wiring in the edge portion of said stress relaxation layer is greater than the width of wiring in a flat portion of said stress relaxation layer, at least regarding signal wirings.

12. (Amended) A semiconductor device comprising:

a semiconductor element having a plurality of circuit electrodes disposed thereon and a circuit surface coated with a protecting film,

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a stress relaxation layer formed on the protecting film of the circuit surface of said semiconductor element so as to expose the circuit electrodes, which is made of a thermoplastic resin having a glass transition temperature  $T_g$  falling in the range of from 150°C to 400°C and has an inclination in an edge portion thereof,

a wiring layer comprised of a plurality of wirings, each of said wirings being connected to one of the circuit electrodes and disposed so as to make an electrical connection from said circuit electrode, via the edge portion of stress relaxation layer and to a desired site on a surface of the stress relaxation layer,

a surface protecting film which covers a surface of the wiring layer so as to expose a prescribed portion on each of the plurality of wirings on the surface of

the stress relaxation layer, and

an external connection terminal formed by connecting a bump to said prescribed exposed portion of each of the plurality of exposed wirings.

13. (Amended) A semiconductor device according to Claim 12, wherein a thickness of said stress relaxation layer is in the range of from about 35  $\mu\text{m}$  to about 150  $\mu\text{m}$ .

[ Please add new claims 17-28 as follows: ]

-- 17. A semiconductor device according to claim 1, wherein a protuberant portion is formed between the inclined edge portion and a flat portion of the stress relaxation layer and wherein a height of the protuberant portion is slightly higher than a height of the flat portion.

18. A semiconductor device according to claim 17, wherein said wirings are formed also on said protuberant portion.

19. A semiconductor device according to claim 17, wherein said wirings each have a deflected portion on said protuberant portion.

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55504109 20. A semiconductor device according to claim 1, wherein said external connection terminal does not contain lead.

21. A semiconductor device according to claim 1, wherein said thermoplastic resin is prepared by coating a varnish on a first electrically insulating film and volatilizing a solvent in the varnish.

22. A semiconductor device according to claim 1, wherein in the inclined edge portion of said stress relaxation layer, a wiring shape is different between a signal line and a ground line or between a signal line and an electric source line among said wirings.

23. A semiconductor device comprising:

a semiconductor element having an electrode on a surface thereof,

a first electrically insulating film which covers an electrode-formed face of the semiconductor element and has an opening part at a position corresponding to said electrode, and

a second electrically insulating layer formed on said first electrically insulating film,

wherein said second electrically insulating layer relaxes a stress between said semiconductor device and a substrate on which said semiconductor device is to be mounted, and said second electrically insulating layer is comprised of a thermoplastic resin.

24. A semiconductor device according to claim 23,  
wherein an opposite side to the portion connected to said  
electrode in said wiring has an external connection terminal  
to be electrically connected to the substrate on which said  
semiconductor device is to be mounted.

103 25. A semiconductor device according to claim 24,  
wherein said external connection terminal does not contain  
lead.

Cont'd  
AS 26. A semiconductor device according to claim 23,  
wherein a protuberant portion is formed between an inclined  
portion and a flat portion of the second electrically  
insulating and wherein a height of the protuberant portion is  
slightly higher than a height of the flat portion.

27. A semiconductor device according to claim 23,  
wherein a width of the wiring in an inclined portion of said  
second electrically insulating is wider than a width of the  
wiring in a flat portion of said second electrically  
insulating, regarding a width of the wiring of at least either  
an electric source or ground of said wirings.

28. A semiconductor device according to claim 23,  
wherein in an inclined portion of said second electrically